Renewable Fuels Association

Energy & Commerce Committee
Subcommittee on Energy and Air Quality
United States House of Representatives

Hearing on
Alternative Fuels: Current Status, Proposals for New Standards, and Related Infrastructure Issues

Testimony of

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Good morning, Chairman Boucher and Members of the Committee. My name is Bob Dinneen and I am president and CEO of the Renewable Fuels Association (RFA), the national trade association representing the U.S. ethanol industry.

This is an important and timely hearing, and I am pleased to be here to discuss the effect the Renewable Fuels Standard (RFS) has had on the market for renewable fuels in the U.S., some of the recent proposals to revise the RFS and expand the program to include other types of fuels, and policies that Congress could enact that would more quickly deploy the infrastructure necessary to increase alternative fuel availability.

Background

Today's ethanol industry consists of 116 biorefineries located in 19 different states with the capacity to process almost 2 billion bushels of grain into 6 billion gallons of high octane, clean burning motor fuel, and more than 12 million metric tons of livestock and poultry feed. It is a dynamic and growing industry that is revitalizing rural America, reducing emissions in our nation's cities, and lowering our dependence on imported petroleum.

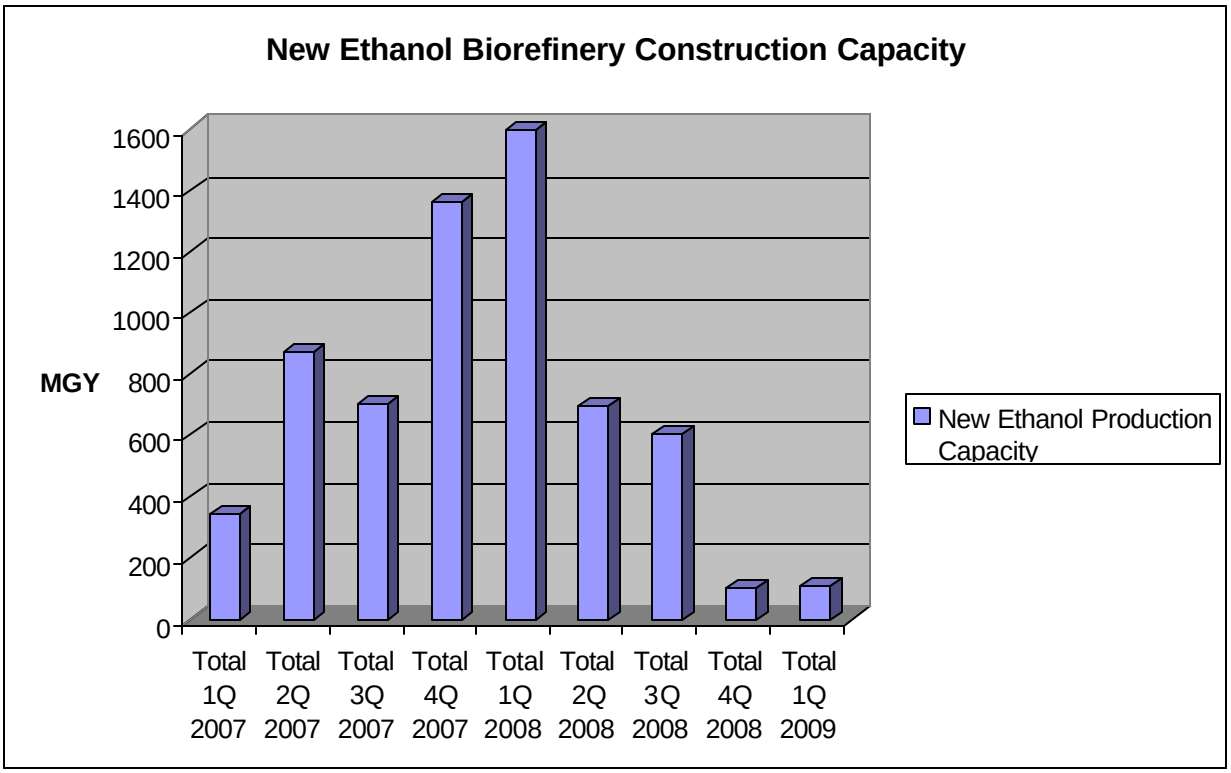
Ethanol has become an essential component of the U.S. motor fuel market. Today, ethanol is blended in almost 50 percent of the nation's fuel, and is sold virtually from coast to coast and border to border. The almost 5 billion gallons of ethanol produced and sold in the U.S. last year contributed significantly to the nation's economic, environmental and energy security.

According to an analysis completed for the RFA[1], the approximately 5 billion gallons of ethanol produced in 2006 resulted in the following impacts:

- Added $41.1 billion to gross output;
- Created 160,231 jobs in all sectors of the economy;
- Increased economic activity and new jobs from ethanol increased household income by $6.7 billion, money that flows directly into consumers' pockets;
- Contributed $2.7 billion of tax revenue for the Federal government and $2.3 billion for State and Local governments; and,
- Reduced oil imports by 170 million barrels of oil, valued at $11.2 billion.

In addition to providing a growing and reliable domestic market for American farmers, the ethanol industry also provides the opportunity for farmers to enjoy some of the value added to their commodity by further processing. Farmer-owned ethanol plants account for 43 percent of the U.S. fuel ethanol plants and almost 34 percent of industry capacity.

There are currently 81 biorefineries under construction. With eight existing biorefineries expanding, the industry expects more than 6.3 billion gallons of new production capacity to be in operation by the end of 2009. The following is our best estimate of when this new production will come online.



[1] *Contribution of the Ethanol Industry to the Economy of the United States*, Dr. John Urbanchuk, Director, LECG, LLC, December, 2006.

Status of the Renewable Fuels Standard

Due to the visionary and invaluable work of this Committee in the 109th Congress, the Energy Policy Act of 2005 (EPAct 2005) put our nation on a new path toward greater energy diversity and national security through the RFS. EPAct 2005 has stimulated unprecedented investment in the U.S. ethanol industry. Since January of 2006, when the RFS went into effect, no fewer than 15 new ethanol biorefineries have begun operation, representing some 1.2 billion gallons of new production capacity. These new gallons represent a direct investment of more than $1.8 billion and the creation of more than 22,000 new jobs in small communities across rural America.

The RFS has done exactly what Congress intended. It provided our industry with the opportunity to grow with confidence. It convinced the petroleum industry that ethanol would be a significant part of future motor fuel markets and moved them toward incorporating renewable fuels into their future plans. It persuaded the financial community that biofuels companies are growth market opportunities, encouraging significant new investment from Wall Street and other institutional investors. If a farmer in Des Moines doesn't want to invest in the local co-op, he can choose to invest in a publicly traded ethanol company through the stock market, as can a schoolteacher in Boston, or a receptionist in Seattle. Americans from coast-to-coast now have the opportunity to invest in our domestic energy industry, and not just in biofuels like ethanol and biodiesel, but bio-based products as well.

In addition to the RFS, many of the other programs authorized by EPAct 2005, such as the loan guarantee and grant programs, will accelerate the commercialization of cellulosic ethanol. The House Energy and Commerce Subcommittee on Energy and Air Quality will have an invaluable role to play in making sure our nation successfully moves toward increasing the use of domestic, renewable energy sources.

U.S. Environmental Protection Agency (EPA) Administrator Stephen Johnson signed into law the final implementation rules of the historic RFS into law on April 10, 2007. EPA has worked diligently with all stakeholders, including the RFA, to create a program that provides oil refiners the flexibility they need while still honoring Congressional intent to expand the use of renewable fuels. The success of this program is paramount to the future of America and the U.S. renewable fuels industry. The RFS program has created the fastest growing energy sector anywhere in the world. The RFA commends the commitment and dedication of Administrator Johnson and the EPA staff for getting this program fully implemented in a timely and efficiently process.

Building off of the success of the RFS, some have suggested expanding the current program to include other alternative fuels. The Administration has proposed replacing the RFS with an Alternative Fuels Standard (AFS) that would replace as much as 35 billion gallons of petroleum by 2017. We applaud the President's vision and certainly support the intent to increase the production and use of a wide range of alternative fuels. Diversification of our energy resources will only positively contribute to our nation's energy and economic security. But while the RFS has provided a great deal of certainty to the marketplace and the investment community, we are concerned that an AFS would only add confusion to the marketplace. Setting aside the success of the RFS and creating a new program that would attempt to crowd a number of alternative fuels into one program would reduce the confidence that EPAct 2005 gave to the renewable fuels

industry, and provide no clear market drivers for continued investment in the still developing renewable and alternative fuels industries. Going forward, RFA envisions a diversity of programs for each of several groupings of renewable and alternative fuels that will send the appropriate signals to the marketplace to determine which fuels are cost effective and environmentally responsible.

Deployment and Commercialization of New Technologies and Feedstocks

To date, the U.S. ethanol industry has grown almost exclusively from grain processing. As a result of steadily increasing yields and improving technology, the National Corn Growers Association (NCGA) projects that by 2015, corn growers will produce 15 billion bushels of grain. According to the NCGA analysis, this will allow a portion of that crop to be processed into 15 billion gallons of ethanol without significantly disrupting other markets for corn.

In the future, however, ethanol will be produced from other feedstocks, such as cellulose. Ethanol from cellulose will dramatically expand the types and amount of available material for ethanol production, and ultimately dramatically expand ethanol supplies. Many companies are working to commercialize cellulosic ethanol production. Indeed, there is not an ethanol biorefinery in production today that does not have a very aggressive cellulose ethanol research program. The RFA believes cellulose ethanol will be commercialized first by current producers who have these cellulosic feedstocks at their grain-based facilities.

Further, biotechnology will play a significant role in meeting our nation's future ethanol needs. Average yield per acre is not static and will increase incrementally, especially with the introduction of new biotech hybrid varieties. According to NCGA, corn yields have consistently increased an average of about 3.5 bushels per year over the last decade. Based on the 10-year historical trend, corn yield per acre could reach 180 bushels by 2015. For comparison, the average yield in 1970 was about 72 bushels per acre. Agricultural companies like Monsanto believe we can achieve corn yields of up to 300 bushels per acre by 2030. It is not necessary to limit the potential of any feedstock – existing or prospective. Ultimately, the marketplace will determine which feedstocks are the most economically and environmentally feasible.

The ethanol industry today is on the cutting edge of technology, pursuing new processes, new energy sources and new feedstocks that will make tomorrow's ethanol industry unrecognizable from today's. Ethanol companies are already utilizing cold starch fermentation, corn fractionation, and corn oil extraction. Companies are pursuing more sustainable energy sources, including biomass gasification and methane digesters. And, as stated, there is not an ethanol company represented by the RFA that does not have a cellulose-to-ethanol research program. These cutting edge technologies are reducing energy consumption and production costs, increasing biorefinery efficiency, improving the protein content of feed co-products, utilizing new feedstocks such as cellulose, and reducing emissions by employing best available control technologies.

While there are indeed limits to what we will be able to produce from grain, cellulose ethanol production will augment, not replace, grain-based ethanol. The conversion of feedstocks like corn stover, corn fiber and corn cobs will be the "bridge technology" that leads the industry to

the conversion of other cellulosic feedstocks and energy crops such as wheat straw, switchgrass, and fast-growing trees. Even the garbage, or municipal solid waste, Americans throw away today will be a future source of ethanol.

The technology exists to process ethanol from cellulose feedstocks; however, commercialization of cellulosic ethanol remains a question of economics and markets. The capital investment necessary to build cellulosic ethanol facilities remain about five times that of grain-based facilities. Those costs will, of course, come down once the first handful of cellulosic facilities are built, the bugs in those "first mover" facilities are worked out, and the technology continues to advance. The enzymes involved in the cellulosic ethanol process remain a significant cost, as well. While there has been a tremendous amount of progress over the past few years to bring the cost of those enzymes down, it is still a significant cost relative to processing grain-based ethanol.

To persist in this technological revolution, however, continued government support will be critically important to build upon the industry's advancements in technologies to reduce energy consumption, improve biorefinery efficiency, and develop new co-products will be fundamental. Programs authorized by EPAct, such as the loan guarantee and grant programs, to accelerate the commercialization of cellulosic ethanol must be fully funded. Programs that build upon the existing programs authorized in EPAct 2005 will allow technologically promising cellulosic ethanol projects move the industry forward become a reality.

It is also important to recognize, however, that the financial community will have to recognize real market opportunities for cellulosic ethanol to be viable. There are certainly adequate supplies of grain-based ethanol to meet the demand for ethanol as a blend component in gasoline. But if Congress intends to grow the market for biofuels beyond a gasoline additive, other more aggressive programs will be necessary.

Infrastructure

Ethanol today is largely a blend component with gasoline, adding octane, displacing toxics and helping refiners meet Clean Air Act specifications. But the time when ethanol will saturate the blend market is on the horizon, and the industry is looking forward to new market opportunities. As rapidly as ethanol production is expanding, it is possible the industry will saturate the existing blend market before a meaningful E-85 market develops. In such a case, it would be most beneficial to allow refiners to blend ethanol in greater volumes, e.g., 15 or 20 percent. The ethanol industry today is engaged in testing on higher blend levels of ethanol, beyond E-10. There is evidence to suggest that today's vehicle fleet could use higher blends. An initial round of testing is underway, and more test programs will be needed. Additional study of increased blend levels of ethanol will be an essential and necessary step to moving to higher blend levels with our current vehicle fleet. Higher blend levels would have a significant positive impact on the U.S. ethanol market, without needing to install new fuel pumps and wait for a vehicle fleet to turn over in the next few decades. It would also allow for a smoother transition to E-85 by growing the infrastructure more steadily.

Enhancing incentives to gasoline marketers to install E-85 refueling pumps will continue to be essential. By expanding tax incentives for E-85 refueling infrastructure, and creating new consumer-based tax incentives to encourage flexible fuel vehicles production new markets for renewable fuels will open. There are now more than 1,000 E-85 refueling stations across the country, more than doubling in number since the passage of EPAct 2005. The RFA also supports the concept of regional "corridors" that concentrate the E-85 markets first where the infrastructure already exists.

Over the past several years, the ethanol industry has worked to expand a "Virtual Pipeline" through aggressive use of the rail system, barge and truck traffic. As a result, we can move product quickly to those areas where it is needed. Many ethanol plants have the capability to load unit trains of ethanol for shipment to ethanol terminals in key markets. Unit trains are quickly becoming the norm, not the exception, which was not the case just a few years ago. Railroad companies are working with our industry to develop infrastructure to meet future demand for ethanol. We are also working closely with terminal operators and refiners to identify ethanol storage facilities and install blending equipment. We will continue to grow the necessary infrastructure to make sure that in any market we need to ship ethanol there is rail access at gasoline terminals, and that those terminals are able to take unit trains. Looking to the future, a study of the feasibility of transporting ethanol by dedicated pipeline from the Midwest to the East and West coasts will be critical.

As flexible fuel vehicle (FFV) production is ramped up, it is important to encourage the use of the most efficient technologies. Some FFVs today experience a reduction in mileage when ethanol is used because of the differences in BTU content compared to gasoline. But the debit can be easily addressed through continued research and development. For example, General Motors has introduced a turbo-charged SAAB that experiences no reduction in fuel efficiency when E-85 is used. There is also technology being development that utilizes "variable compression ratio engines" that would adjust the compression ratio depending on the fuel used. Thus, if the car's computer system recognized E-85 was being used, it would adjust the compression ratio to take full advantage of ethanol's properties. The study of new technologies could dramatically improve E-85 economics by eliminating or substantially reducing the mileage penalty associated with existing FFV technology.

Conclusion

The 109th Congress enacted several polices, EPAct 2005 most importantly, that clearly put our nation on a new path toward greater energy diversity and national security. Additional and more focused research and development programs, and increased funding levels for EPAct 2005 programs, will be critical to the rapid deployment and commercialization of new technologies for biofuels. Infrastructure will need to continue to expand and advance as the biofuels market does. The continued commitment of the 110th Congress and this Committee to further expand the rapidly growing domestic biofuels industry that will soon eclipse the current RFS will all contribute to ensuring America's future energy security.

Thank you.